AMENDMENTS TO THE CLAIMS

The following listing of claims replaces all prior listings, and all prior versions, of claims in the application.

LISTING OF CLAIMS:

1. – 14. (Cancelled).

15. (Currently Amended) A light exposure apparatus comprising:

an illumination optical system including:

a light source array formed of a plural separate ~~light sources~~semiconductor laser diodes arranged one-dimensionally or two-dimensionally;

a condensing optical system for condensing light emitted from each ~~light source~~semiconductor laser diode of said light source array;

a light integrator for spatially decomposing the light condensed by said condensing optical system, and thus generating a multitude of secondary light source images~~, said light integrator of said illumination optical system comprises an array of a plurality of rod lenses and is adapted such that a ratio "r_1/r_0" between an aspect ratio "r_1" of the sectional shape of each rod lens that is perpendicular to an optical axis thereof, and an aspect ratio "r_0" of the region to be illuminated, is 0.8 or more and 1.2 or less~~; and

a condenser lens for overlapping the light rays emitted from the multitude of secondary light source images generated by said light integrator, and thus illuminating an illumination target region having a pattern to be exposed; and

a projection optical system for projecting transmitted or reflected light onto an exposure target region of an exposure target object in order to expose the pattern to be exposed that is illuminated by said illumination optical system; and

wherein said illumination optical system further includes divergence angle adjusting optical system which divergence angles in the light flux emitted from each of the semiconductor laser diodes are adjusted to stay within a ration of 1 versus 1.5 with respect to any two direction with a plane vertical to an optical axis of the emitted light flux; and

wherein said illumination optical system further includes a rotating modulator formed by rotating a glass disc which is processed (polished) in a radical form so that its surface height shape in each section repeated in circumference direction varies in nearly a sinusoidal fashion and the surface height variation is several microns, on the incident side or exit side of said light integrator to prevent generation (occurrence) of interference fringes on the overlapped illumination target region.

16. (Original) The light exposure apparatus according to claim 15, wherein in said illumination optical system, a region in which the plurality of light sources are arranged, or a light-emitting region of the secondary light sources obtained from the plurality of light sources is made analogous to a shape of the region to be illuminated.

17. – 20. (Cancelled).

21. (Currently Amended) The light exposure apparatus according to ~~claim 20~~claim 15, wherein said divergence angle adjusting optical system ~~include a cylindrical lens~~is formed with two cylindrical lenses.

22. (Original) The light exposure apparatus according to claim 15, wherein said illumination optical system further includes light source control means for performing energy control of the light emitted from said light sources of said light source array.

23. (Original) The light exposure apparatus according to claim 15, wherein said illumination optical system further includes a detector for measuring intensity of the light emitted from said light sources of said light source array.

24. (Currently Amended) A rotating modulator which varies wavefronts of light comprising:

~~a surface which is processed in a radial form so that its sectional view varies in height in nearly sinusoidal fashion~~a rotating modulator formed by rotating a glass disc which is processed (polished) in a radical form so that its surface height shape in each section repeated in circumference direction varies in nearly a sinusoidal fashion and the surface height variation is several microns, on the incident side or exit side of said light integrator to prevent generation (occurrence) of interference fringes on the overlapped illumination target region.